

WHAT IS CLAIMED IS:

- 1 1. An auxiliary oil filter for a vehicle having an engine
2 lubrication system, the auxiliary oil filter comprising:
3 a housing having an inlet port for receiving engine oil separately from
4 the engine lubrication system, and an outlet port for returning filtered oil to the
5 engine, the housing defining an inlet cavity in fluid communication with the inlet
6 port, and an outlet cavity in fluid communication with the outlet port;
7 a seal disposed within the housing for sealing engine oil substantially
8 within the inlet and outlet cavities;
9 a media supply reel disposed within the housing and having a roll of
10 filtering media thereon;
11 a take-up reel disposed within the housing and configured to receive
12 the filtering media from the supply reel; and
13 a media indexing system operative to rotate the take-up reel to receive
14 used filtering media.
- 1 2. The auxiliary oil filter of claim 1, wherein the seal is a lip seal
2 disposed at least partially within the inlet cavity and configured to engage the
3 filtering media.
- 1 3. The auxiliary oil filter of claim 1, wherein the seal is an
2 inflatable seal, configured to be inflated by engine oil.
- 1 4. The auxiliary oil filter of claim 1, further comprising a
2 processor for at least controlling the media indexing system and the flow of engine
3 oil into the auxiliary oil filter.

1 5. The auxiliary oil filter of claim 4, further comprising a
2 pressure sensor for monitoring the oil pressure in the inlet cavity and the outlet
3 cavity, and for signaling the processor.

1 6. An oil filtration system for an engine, comprising:
2 an auxiliary oil filter for receiving and filtering oil from the engine,
3 the auxiliary oil filter including,
4 a) a housing having an inlet port for receiving engine oil, and an
5 outlet port for returning filtered oil to the engine,
6 b) a media supply reel disposed within the housing and having a roll
7 of filtering media thereon,
8 c) a take-up reel disposed within the housing and configured to
9 receive the filtering media from the supply reel, and
10 d) a media indexing system disposed within the housing and operative
11 to rotate the take-up reel to receive used filtering media.

1 7. The oil filtration system of claim 6, wherein the auxiliary oil
2 filter further includes a removable media cartridge disposed within the housing and
3 containing at least the media supply reel and the take-up reel.

1 8. The oil filtration system of claim 6, wherein the auxiliary oil
2 filter further includes a tensioning apparatus disposed within the housing, and
3 operatively connected to the media supply reel for maintaining tension on the
4 filtering media.

1 9. The oil filtration system of claim 6, wherein the auxiliary oil
2 filter further includes a filter media support disposed within the housing for
3 supporting the filtering media as engine oil is filtered.

1 10. The oil filtration system of claim 6, further comprising an
2 electrostatic agglomeration system operatively associated with the filtering media to
3 enhance the collection of small contaminants on the filtering media.

1 11. The oil filtration system of claim 6, further comprising an
2 additive replenishment system operatively associated with the auxiliary oil filter to
3 release additives into the oil.

1 12. The oil filtration system of claim 6, further comprising a
2 sensor for sensing the quality and the level of the oil in the engine.

1 13. The oil filtration system of claim 6, further comprising an oil
2 cooler operatively connected between the auxiliary oil filter and the engine.

1 14. The oil filtration system of claim 6, further comprising an
2 auxiliary pump operatively connected between the engine and the auxiliary oil filter
3 for pumping oil from the engine to the auxiliary oil filter.

1 15. The oil filtration system of claim 14, further comprising an
2 oil cooler operatively connected between the pump and the engine.

1 16. The oil filtration system of claim 14, further comprising a
2 subsystem for remote filling and draining for oil replacement.

1 17. The oil filtration system of claim 16, wherein the subsystem
2 includes a first directional control valve operatively connected between the engine
3 and the pump for remote oil filling and a second directional control valve
4 operatively connected between the pump and the auxiliary filter for oil draining.

1 18. An oil filtration system for an engine, comprising:
2 an auxiliary oil filter for receiving and filtering oil from the engine,
3 the auxiliary oil filter including,
4 a) a housing having an inlet port for receiving engine oil, and an
5 outlet port for returning filtered oil to the engine,
6 b) a media supply reel disposed within the housing and having a roll
7 of filtering media thereon,
8 c) a take-up reel disposed within the housing and configured to
9 receive the filtering media from the supply reel, and
10 d) a media indexing system operative to rotate the take-up reel to
11 receive used filtering media; and
12 a processor for at least controlling the media indexing system and the
13 flow of engine oil into the auxiliary oil filter.

1 19. The oil filtration system of claim 18, further comprising an
2 electrostatic agglomeration system operatively associated with the filtering media to
3 enhance the collection of small contaminants on the filtering media.

1 20. The oil filtration system of claim 18, further comprising an
2 additive replenishment system operatively associated with the auxiliary oil filter to
3 release additives into the oil.

1 21. The oil filtration system of claim 18, further comprising a
2 sensor for sensing the quality and the level of the oil in the engine.

1 22. The oil filtration system of claim 18, further comprising an
2 oil cooler operatively connected between the auxiliary oil filter and the engine.

1 23. The oil filtration system of claim 18, further comprising an
2 auxiliary pump operatively connected between the engine and the auxiliary oil filter
3 for pumping oil from the engine to the auxiliary oil filter.

1 24. The oil filtration system of claim 23, further comprising an
2 oil cooler operatively connected between the pump and the engine.

1 25. The oil filtration system of claim 23, further comprising a
2 subsystem for remote filling and draining for oil replacement.

1 26. The oil filtration system of claim 25, wherein the subsystem
2 includes a first directional control valve operatively connected between the engine
3 and the pump for remote oil filling and a second directional control valve
4 operatively connected between the pump and the auxiliary filter for oil draining.